

REMARKS

Claims 1-32 are pending in the present application. By virtue of this response no claims have been cancelled, amended, or added. Accordingly, claims 1-32 are currently under consideration. For the Examiner's convenience, Applicants remarks are presented in the same order in which they were raised in the Office Action.

Claim Rejections – 35 U.S.C. § 102(b)

- A. Claims 1-4, 6, 8, 10, 12, 16, 18-20, 24, 26, and 29 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tsutsumi (U.S. Publication No. 2002/0031290 A1).

The Examiner states that Tsutsumi discloses a system for measuring a characteristic of an optical article including, *inter alia*, a sensor (40, i.e., photosensor or photosensors (40a) and (40b) in Fig. 2) for generating signals associated with “an intensity and position of the light received for individual spots of received light,” and a processor (OS, i.e., oscilloscope and operation circuit (42) in Fig. 2), wherein “the processor is configured to receive signals from the sensor (40, i.e., photosensor) associated with a single spot of received light and determine a deflection angle and a direction of the deflection angle of the light from the probe path (paragraph 0066).”

Applicants respectfully traverse the rejection and submit that the features of claim 1 are not disclosed or suggested by Tsutsumi. In particular, Tsutsumi fails to disclose or suggest a system for measuring a characteristic of an optical article as recited by claim 1, where the sensor generates signals associated with an intensity and position for a received spot of light, and “the processor is configured to receive signals from the sensor associated with a single spot of received light and determine a deflection angle and a direction of the deflection angle of the light from the probe path.”

Specifically, the oscilloscope (OS) and operation circuit 42 of Tsutsumi are not configured for determining a deflection angle and a direction of the deflection angle (e.g., from received signals from the sensor). The OS is for detecting and analyzing the “waveform of the optical signal detected by the photo detector 40” (Tsutsumi, ¶44, see also, 47). The Examiner

references Fig. 2 and photosensor 40 (or photosensors 40a and 40b), however, Tsutsumi is clear that the photosensors are used to detect the optical signals passing through and reflected from analyzer 36 for use with the recited formula $(A-B/(A+B))$ to determine the modulation of the optical signals, and in particular, the “strength of the magneto-optical effect,” which is directed to a change in the polarization state and not a position of the beam. (see, e.g., ¶¶ 50-52 of Tsutsumi). The photosensors, signals generated therefrom, and operations by operation circuit 42 and OS therefore rely on a comparison of the light (e.g., the “envelope of intensity of the thus-modulated optical signal,” as described at ¶ 47 of Tsutsumi) passing through analyzer 36 and reflected from analyzer 36 respectively. (Tsutsumi, ¶¶ 50-52). Such disclosure fails to disclose or suggest determining an angle of deflection or direction of deflection. Moreover, there is no disclosure or indication that the detectors (e.g., photosensors 40, 40a, or 40b) generate a signal associated with the position of a received spot of light, nor is the position desired for the disclosed operations. Accordingly, the processor of Tsutsumi is not configured to determine a direction and deflection angle of the received light.

Additionally, although the embodiment shown in Fig. 9 contemplates a beam deflection, paragraph 65 of Tsutsumi makes clear that the “deflection angle of the light beam passing through the monocrystal 22 can be measured via the second lens 38.” The disclosure fails to disclose the determination of deflection angle from a signal generated by the sensor or determining a direction of the deflection angle. For example, Tsutsumi does not disclose that the sensors of Tsutsumi (whether photosensor 40 or photosensors 40a and 40b) generate a signal associated with an intensity and a position of the light received, which is used by a processor to determine a deflection angle and direction. Additionally, there is no disclosure that a direction of the deflection angle is determined.

Accordingly, for at least these reasons, Tsutsumi fails to disclose or suggest all the features of claim 1 and the rejection should be withdrawn. Additionally, claims 2-17 depend from claim 1 and are allowable over Tsutsumi for at least similar reasons as claim 1. Independent claims 18 and 26 recite features similar to claim 1, and which are not disclosed by Tsutsumi. Therefore, claims 18 and 26 are allowable over Tsutsumi for at least similar reasons as claim 1. Additionally,

claims 19-25 and 27-31, which depend from claims 18 and 26, are allowable over Tsutsumi for at least similar reasons as claims 18 and 26.

Claim 4

Applicants further traverse the rejection with respect to claim 4. Specifically, the Examiner states on Page 3 of the Office Action that Tsutsumi “shows in Fig. 8 further including a stage (23, i.e., GGG substrate) for translating an optical article (combination of monocrystal (22) and microstrip (24)) relative to the light source.” Applicants disagree. The GGG substrate is a Gadolinium Gallium Garnet substrate, which is a synthetic crystalline material having no moving parts. Monocrystalline thin film 22 is formed on the GGG substrate through LPE (Liquid Phase Epitaxy). (Tsutsumi, ¶ 60). The GGG substrate 23 forms a portion of the article and is therefore clearly not a “stage” as recited by claim 4 (and described throughout the present application). Thus, Tsutsumi fails to disclose or suggest that GGG substrate is translated (directly or via an undisclosed stage) as asserted by the Examiner. Furthermore, Tsutsumi does not disclose the ability to determine a characteristic of the article at multiple locations as asserted by the examiner. Scanning operation of paragraph 66 refers to direction of the beam and not translation of the article. Accordingly, Applicants request the rejection be withdrawn to claim 4 for this additional reason.

Claim 17

Applicants further traverse the rejection with respect to claim 17. Specifically, Applicants submit that Tsutsumi fails to disclose or suggest that the sensor is positioned to detect light reflected from the reference location. The Examiner references Figs. 1, 2, and 9 of Tsutsumi, however, these embodiments all illustrate transmission of light through the article. Applicants fail to see in what manner the detectors illustrated therein detect light reflected from the reference location as recited by claim 17. Accordingly, Applicants request the rejection be withdrawn to claim 17 for this additional reason.

- B. Claims 1-13, 17-23, 26-28, and 30-32 stand rejected under 35 U.S.C. 102(b) as being anticipated by Opsal (U.S. Patent No. 5,042,952).

The Examiner states that Opsal discloses a system for measuring a characteristic of an optical article including, *inter alia*, a sensor (50, i.e., photodetector) for generating signals associated with “an intensity and position of the light received (col. 10, lines 28-34)” and a processor (32), wherein “the processor is configured to receive signals from the sensor [] and determine a deflection angle and a direction of the deflection angle of the light from the probe path.”

Applicants respectfully traverse the rejection and submit that the features of claim 1 are not disclosed or suggested by Opsal. In particular, Opsal fails to disclose or suggest a system for measuring a characteristic of an optical article as recited by claim 1, where the sensor generates signals associated with an intensity and position for a received spot of light, and “the processor is configured to receive signals from the sensor associated with a single spot of received light and determine a deflection angle and a direction of the deflection angle of the light from the probe path.”

In contrast to the features of claim 1, the portions of Opsal cited by the Examiner disclose that “intensity variation of a radiation beam are to be detected,” for which a “standard photodetector may be employed as a sensing mechanism,” and measured intensity variations are supplied to “processor 32 for deriving information relating to the sample.” (Opsal, Col. 10, lines 30-42). Thus, processor 32 is described as deriving information relating to the surface and subsurface conditions of the sample based on the measured intensity variations of a radiation beam by a photodetector. (*Id.*). Such disclosure fails to disclose or suggest either a detector generating a signal based on the position of the incident light spot or that processor 32 determines a deflection angle and direction of the received light beam.

It is noted that with respect to Fig. 3 Opsal discloses a “split or bi-cell photodetector 50a,” which may be used to “measure the extent of the beam deflections.” (Col. 12, line 60 to col. 13, line 2). This disclosure fails to disclose that a direction of the beam deflections are measured or

determined by the processor. For example, a split or bi-cell photodetector generally only indicates the extent of a deflection, but not the direction. Thus, the “extent” or magnitude of the beam deflection is disclosed, but Opsal fails to disclose that the direction of the beam deflection is determined.

Accordingly, for at least these reasons, Opsal fails to disclose or suggest all the features of claim 1 and the rejection should be withdrawn. Additionally, claims 2-17, which depend from claim 1, are allowable over Opsal for at least similar reasons as claim 1. Independent claims 18 and 26 recite features similar to claim 1, and which are not disclosed by Opsal. Therefore, claims 18 and 26 are allowable over Opsal for at least similar reasons as claim 1. Additionally, claims 19-25 and 27-31, which depend from claims 18 and 26, are allowable over Opsal for at least similar reasons as claims 18 and 26.

Claim 28

Applicants further traverse the rejection with respect to claim 28. Specifically, the Examiner states on Page 9 of the Office Action that Opsal discloses a method wherein the scan is performed along a third dimensions (the Examiner references column 16, lines 20-24 thereof). Applicants disagree. The portion of Opsal recites that “3-dimensional effects should be included. As described by [citation omitted] this may be accomplished by a treatment based on a linear superposition of 1-dimensional solutions.” (Col. 16, lines 20-24). This portion appears to merely describe that 3-dimensional effects may be obtained from 1-dimensional solutions, but fails to disclose or suggest a three dimensional scan of the optical material as recited by claim 28. Further, Opsal specifically specifies a two-axis stage at column 7, line 67 and shown in Fig. 1. Accordingly, Applicants request the rejection be withdrawn to claim 28 for this additional reason.

Claim Rejections – 35 U.S.C. § 103(a)

A. Claim 14, 15, and 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsumi (Publication No. U.S. 2002/0031290 A1) in view of Migeotte (U.S. Patent No. 3,688,235).

Claims 14, 15, and 25 depend ultimately from independent claims 1 and 18 and are allowable over Tsutsumi for at least similar reasons stated above. The addition of Migeotte fails to cure the deficiencies of Tsutsumi, nor is Migeotte alleged to. Accordingly, Applicants request the rejection be withdrawn.

Further, with regard to claims 14, 15, and 25, which relate generally to the use of confocal filters and confocal imaging, Applicants disagree with the Examiner's assertion that Migeotte discloses confocal filters and/or confocally imaging the light after the light interacts with the optical article. The Examiner states under the "Response to Arguments" heading (pages 9 and 10 of the Office Action) that "confocal imaging of the light is performed by detector 24 and 28," and that "confocal filters are disclosed in col. 6, lines 50-56, where screens (20) and (26) shown in Figs. 2a and 3a, may use light filters in place of mask (8)."

Applicants disagree – Migeotte simply does not disclose a confocal filter to facilitate confocal imaging. Migeotte clearly describes the disclosed system and method as forming a "sharp image of the mask 8 [] focused on the central area 22 of the screen 20." (Migeotte, 5:24-26; 8:42-47.) Thus, the disclosed system and method of Migeotte does not focus the beam to a focal point disposed at a hole of a pin-hole filter as would be the case for confocal imaging. For example, the system of Migeotte would need the rays which cross at focus 11 to be re-focused by a lens such that they cross again at some point x (where point x would be an image of point 11, or 11 and x would constitute "conjugate points") with a pinhole filter disposed around x. Accordingly, Migeotte cannot be confocally imaging the light because the system and method is described as focusing an image of the disc/mask 8 onto screen 20.

Furthermore, the "confocal filters" identified by the Examiner and described at col. 6, lines 50-56 are clearly described as "a light filter, e.g., a colored or Polaroid filter," (emphasis added) for the purpose of replacing the mask (8, 8', 8''), which is disposed in the light beam path prior to passing through screen 12. Migeotte provides no disclosure that would suggest such a colored "light filter" is a confocal filter, e.g., including a pin-hole filter disposed at a conjugate

focus. Accordingly, Migeotte does not disclose or suggest a confocal filter, and further, detectors 24 and 28 cannot be said to be confocally imaging the received light (e.g., as recited by claim 24).

Accordingly, Migeotte fails to disclose or suggest the use of a confocal filter or confocal imaging and the rejection to claims 14, 15, and 25 should be withdrawn for at least these additional reasons.

B. Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Opsal (U.S. Patent No. 5,042,952) in view of Fanton (U.S. Patent No. 5,181,080).

Claim 13 depends ultimately from independent claim 1 and is allowable over Opsal for at least similar reasons stated above. The addition of Fanton fails to cure the deficiencies of Opsal, nor is Fanton alleged to. Accordingly, Applicants request the rejection be withdrawn.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 495812005700. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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